

Pulsed Power Amplifier for Enhanced Transmitter Power Output in L- and P-band T/R Modules (2007045), Phase I

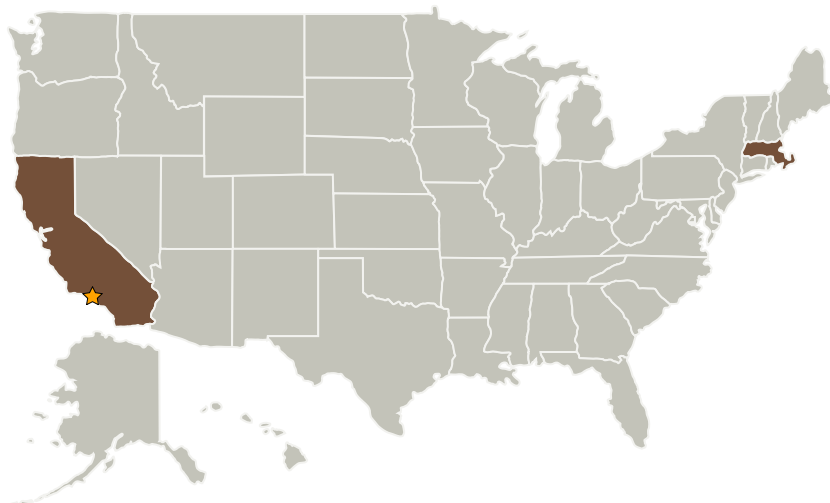
Completed Technology Project (2008 - 2008)



Project Introduction

For active microwave surveillance of earth surface and atmosphere, radar transceivers perform functions of probing the atmosphere and the surface conditions of the earth. The primary objective of Phase 1 is to establish a design baseline for a high-efficiency pulsed power amplifier MMIC/module operating at L-band frequency. Hittite has been working on development of L-band MMICs for all those functions and integration of the entire T/R module using an E/D PHEMT process. The transmitter power output of the current program is limited to about 2 watts. In Phase 2, the program objective should be expanded to include integration of the complete T/R module using the process compatible with the GaN amplifier design. The amplifier technology developed so far will be expanded to provide a design of a pulsed amplifier operating at the higher output level first. The second crucial part of this proposal is to establish a design baseline for pulsed power switches with power output capabilities at 300 watts at a max of 20% duty cycle.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
Hittite Microwave Corporation	Supporting Organization	Industry	Chelmsford, Massachusetts



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations

California

Massachusetts

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

David Helms

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
 - └ TX12.1 Materials
 - └ TX12.1.1 Lightweight Structural Materials